

# Material Safety Data Sheet

## Silver nitrate

ACC# 20810

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** Silver nitrate

**Catalog Numbers:** AC197680000, AC419350000, AC419350500, AC419352500, AC419360000, AC419360250, AC419365000, 19768-0050, 19768-0250, 19768-1000, 19768-5000, 41935-1000, 41935-5000, 41936-1000, BP2546-100, BP2546-25, BP2546-500, NC9617718, S181-100, S181-25, S181-500, S181-500LC, S486-100, S486-500

**Synonyms:** Nitric acid, silver salt.

**Company Identification:**

Fisher Scientific  
1 Reagent Lane  
Fair Lawn, NJ 07410

**For information, call:** 201-796-7100

**Emergency Number:** 201-796-7100

**For CHEMTREC assistance, call:** 800-424-9300

**For International CHEMTREC assistance, call:** 703-527-3887

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
7761-88-8	Silver nitrate	>99	231-853-9

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Appearance: white solid.

**Danger!** Strong oxidizer. Contact with other material may cause a fire. Causes burns by all exposure routes. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Target Organs:** Eyes, skin, mucous membranes.

#### Potential Health Effects

**Eye:** Causes eye burns.

**Skin:** Causes skin burns. May be harmful if absorbed through the skin.

**Ingestion:** Causes gastrointestinal tract burns. May be harmful if swallowed. Ingestion of soluble silver salts may cause argyria, characterized by permanent blue-gray pigmentation of the skin, mucous membranes, and eyes. Lethal dose for humans is 2 grams, or about 28.6 mg/kg.

**Inhalation:** Causes severe irritation of upper respiratory tract with coughing, burns, breathing difficulty, and possible coma.

**Chronic:** May cause methemoglobinemia, which is characterized by chocolate-brown colored blood, headache, weakness, dizziness, breath shortness, cyanosis (bluish skin due to deficient oxygenation of blood), rapid heart rate, unconsciousness and possible death. Chronic inhalation or ingestion of silver salts may cause argyria characterized by a permanent blue-gray discoloration of the eyes, skin, mucous membranes, and internal organs. This malady results from the accumulation of silver in the body.

## Section 4 - First Aid Measures

**Eyes:** Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

**Skin:** Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

**Ingestion:** Get medical aid immediately. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.

**Inhalation:** Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Get medical aid. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

**Notes to Physician:** Treat symptomatically and supportively.

## Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Strong oxidizer. Contact with other material may cause fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

**Extinguishing Media:** Use flooding quantities of water as spray.

**Flash Point:** Not applicable.

**Autoignition Temperature:** Not applicable.

**Explosion Limits, Lower:** Not available.

**Upper:** Not available.

**NFPA Rating:** (estimated) Health: 3; Flammability: 1; Instability: 2; Special Hazard: OX

## Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.  
**Spills/Leaks:** Vacuum or sweep up material and place into a suitable disposal container. Avoid generating dusty conditions. Provide ventilation. Keep combustibles (wood, paper, oil, etc.,) away from spilled material.

**Section 7 - Handling and Storage**

**Handling:** Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Minimize dust generation and accumulation. Do not get in eyes, on skin, or on clothing. Do not ingest or inhale. Use with adequate ventilation. Keep from contact with clothing and other combustible materials. Inform laundry personnel of contaminant's hazards.

**Storage:** Do not store near combustible materials. Keep container closed when not in use. Store in a cool, dry, well-ventilated area away from incompatible substances. Store protected from light. Avoid storage on wood floors.

**Section 8 - Exposure Controls, Personal Protection**

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

**Exposure Limits**

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Silver nitrate	0.01 mg/m <sup>3</sup> TWA (as Ag) (listed under Silver soluble compounds).	0.01 mg/m <sup>3</sup> TWA (as Ag) (listed under Silver soluble compounds).10 mg/m <sup>3</sup> IDLH (as Ag) (listed under Silver soluble compounds).	0.01 mg/m <sup>3</sup> TWA (as Ag) (listed under Silver soluble compounds).

**OSHA Vacated PELs:** Silver nitrate: No OSHA Vacated PELs are listed for this chemical.

**Personal Protective Equipment**

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear appropriate gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

## Section 9 - Physical and Chemical Properties

**Physical State:** Solid  
**Appearance:** white  
**Odor:** odorless  
**pH:** ~ 6 (aq soln)  
**Vapor Pressure:** Not available.  
**Vapor Density:** Not available.  
**Evaporation Rate:** Not available.  
**Viscosity:** Not available.  
**Boiling Point:** 433 deg C  
**Freezing/Melting Point:** 212 deg C  
**Decomposition Temperature:** 440 deg C  
**Solubility:** Soluble.  
**Specific Gravity/Density:** 4.35  
**Molecular Formula:** AgNO<sub>3</sub>  
**Molecular Weight:** 169.87

## Section 10 - Stability and Reactivity

**Chemical Stability:** Becomes gray or grayish-black on exposure to light in the presence of organic matter.  
**Conditions to Avoid:** Heating to decomposition, excess light, contamination.  
**Incompatibilities with Other Materials:** Strong reducing agents, strong bases, alcohols, ammonia, hydrogen peroxide, acetylene, organic matter, charcoal.  
**Hazardous Decomposition Products:** Nitrogen oxides, oxygen, oxides of silver.  
**Hazardous Polymerization:** Will not occur.

## Section 11 - Toxicological Information

**RTECS#:**  
**CAS#** 7761-88-8: VW4725000  
**LD50/LC50:**  
CAS# 7761-88-8:  
Draize test, rabbit, eye: 1 mg Severe;  
Draize test, rabbit, eye: 10 mg Moderate;  
Oral, mouse: LD50 = 50 mg/kg;  
Oral, rat: LD50 = 1173 mg/kg;

Lethal oral dose for humans estimated at 28.6 mg/kg.  
**Carcinogenicity:**

CAS# 7761-88-8: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Epidemiology:** No information found

**Teratogenicity:** No information found

**Reproductive Effects:** See actual entry in RTECS for complete information. Adverse reproductive effects have occurred in experimental animals.

**Mutagenicity:** See actual entry in RTECS for complete information. Mutagenic effects have occurred in experimental animals. Mutation in microorganisms:

**Neurotoxicity:** No information found

**Other Studies:**

## Section 12 - Ecological Information

**Ecotoxicity:** No data available. No information available.

**Environmental:** No information available.

**Physical:** No information available.

**Other:** Do not empty into drains.

## Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.

**RCRA U-Series:** None listed.

## Section 14 - Transport Information

	US DOT	Canada TDG
<b>Shipping Name:</b>	SILVER NITRATE	SILVER NITRATE
<b>Hazard Class:</b>	5.1	5.1
<b>UN Number:</b>	UN1493	UN1493
<b>Packing Group:</b>	II	II

## Section 15 - Regulatory Information

## **US FEDERAL**

### **TSCA**

CAS# 7761-88-8 is listed on the TSCA inventory.

### **Health & Safety Reporting List**

None of the chemicals are on the Health & Safety Reporting List.

### **Chemical Test Rules**

None of the chemicals in this product are under a Chemical Test Rule.

### **Section 12b**

None of the chemicals are listed under TSCA Section 12b.

### **TSCA Significant New Use Rule**

None of the chemicals in this material have a SNUR under TSCA.

### **CERCLA Hazardous Substances and corresponding RQs**

CAS# 7761-88-8: 1 lb final RQ; 0.454 kg final RQ

### **SARA Section 302 Extremely Hazardous Substances**

None of the chemicals in this product have a TPQ.

### **SARA Codes**

CAS # 7761-88-8: immediate, delayed, fire.

### **Section 313**

This material contains Silver nitrate (listed as Silver compounds), >99%, (CAS# 7761-88-8) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

### **Clean Air Act:**

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

### **Clean Water Act:**

CAS# 7761-88-8 is listed as a Hazardous Substance under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

CAS# 7761-88-8 is listed as a Toxic Pollutant under the Clean Water Act.

### **OSHA:**

None of the chemicals in this product are considered highly hazardous by OSHA.

### **STATE**

CAS# 7761-88-8 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, (listed as Silver soluble compounds), Massachusetts.

### **California Prop 65**

California No Significant Risk Level: None of the chemicals in this product are listed.

## **European/International Regulations**

### **European Labeling in Accordance with EC Directives**

#### **Hazard Symbols:**

O C N

#### **Risk Phrases:**

R 34 Causes burns.

R 8 Contact with combustible material may cause fire.

R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

#### **Safety Phrases:**

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).  
S 60 This material and its container must be disposed of as hazardous waste.  
S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

**WGK (Water Danger/Protection)**

CAS# 7761-88-8: 3

**Canada - DSL/NDSL**

CAS# 7761-88-8 is listed on Canada's DSL List.

**Canada - WHMIS**

This product has a WHMIS classification of C, E, D1A.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

**Canadian Ingredient Disclosure List**

CAS# 7761-88-8 is listed on the Canadian Ingredient Disclosure List.

**Section 16 - Additional Information**

**MSDS Creation Date:** 5/17/1999

**Revision #13 Date:** 5/12/2008

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.*